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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/428,203	10/27/1999	CHRISTOPHER O. OKUNJI	003/172/SAP	4366

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ELIZABETH A. ARWINE
USAMRMC
FORT DETRICK
BUILDING 521
FREDERICK, MD 21701

EXAMINER
FLOOD, MICHELE C

ART UNIT	PAPER NUMBER
1651	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.	Applicant(s)
09/428,203	Okunji et al.
Examiner	**Art Unit**
Michele Flood	1651

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *Apr 2, 2001*

2a)☐ This action is **FINAL.** 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-12* is/are pending in the application.

4a) Of the above, claim(s) _____ is/are withdrawn from consideratio

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-12* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claims _____ are subject to restriction and/or election requirement

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

13)☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

a)☐ All b)☐ Some* c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

*See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

15)☒ Notice of References Cited (PTO-892)

16)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

17)☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____

18)☐ Interview Summary (PTO-413) Paper No(s). _____

19)☐ Notice of Informal Patent Application (PTO-152)

20)☐ Other:

DETAILED ACTION

Applicant's election without traverse of Claims 1-12 in Paper No. 7 is acknowledged, and the remaining claims are withdrawn from further consideration by the Examiner as an non-elected group drawn to another invention. Acknowledgment is also made of Applicant's election of the species *Napoleonaea imperialis*.

Specification

The disclosure is objected to because of the following informalities: on page, 29, line 30, there is apparent text missing after the word "and". Appropriate correction is required.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claim 1 is rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for ethyl acetate and methanolic extracts of the seeds of *Napoleonaea imperialis* which exert antileishmanial or antifungal activity, does not reasonably provide enablement for exerting any and all biological activities, wherein the plant extract is prepared using any and all solvents, and any all plant parts thereof. The specification does not enable any person skilled in

the art to which it pertains, or with which it is most nearly connected, to use the invention commensurate in scope with these claims.

The claims are drawn to a biologically active extract from at least one plant selected from the group consisting of *Aframomum aulocacarpus, Aframomun danellii, Dracaena arborea, Eupatorium odoratum, Glossocalyx brevipes* and *Napoleonaea imperialis.* The claims are further drawn to a biologically active extract, wherein said extract is from *Napoleonaea imperialis.* The claims are further drawn to a biologically active extract, wherein said extract is from at least one of roots, stem bark, leaves, fruits or seeds from said plant.

Applicant has demonstrated ethyl acetate and methanolic extracts of the seeds of *Napoleonaea imperialis*, wherein effective amounts of the extracts or compounds exerted either antileishmanial, antifungal or antimalarial activities. Applicant demonstrated that the extracts and pure compounds obtained from said extract showed significant activity *in vivo* on hamster challenged with cutaneous or visceral *Leishmania* isolates. Applicant has demonstrated *in vitro* antifungal activity of said extract comprising the compound Laba-8(17), 12-diene-15, 16-dial (AD-1) against *Cladosporium cucumerinum*, as illustrated in Figure 1. Finally, Applicant has demonstrated *in vitro* antimalarial activity of said extract comprising the compound Laba-8(17), 12-diene-15, 16-dial (AD-1) against *Plasmodium falciparum*, as illustrated in Table 2. Thus, the examiner notes that Applicant has demonstrated *in vitro* and/or *in vivo* antileishmanial, antifungal or antimalarial activities of compound AD-1 obtained from a seed extract of *Napoleonaea imperialis*, using either ethyl acetate or methanol.

While the claims do not expressly direct the method of using an extract of *Napoleonaea imperialis* to treat leishmanial, antifungal, malarial, and fungal disease in humans, the specification teaches delivering the extract to hamsters bearing either malarial parasite clones or promastigote leshmanial forms by oral, intramuscular and subcutaneous routes of administration. Moreover, the specification suggests the use of the instantly claimed extract in the development of new and effective therapeutic agents for the treatment of human diseases in tropical and African countries. The examiner notes that the specification is particularly silent to the use of the instantly claimed extract as a therapeutic agent in the chemotherapy of protozoal diseases. However, it is noted that the specification teaches the administration of extracts of *Napoleonaea imperialis* to hamsters, and that Applicant stresses, "In Africa, traditional medicine with herbal treatment has a long history and is used routinely used in medical care, " on page 26, lines 27-30. Inventions targeted for anti-protozoal drugs bear a heavy responsibility to provide supporting evidence because of the unpredictability in biological responses to therapeutic treatments. The standard of enablement is higher for such inventions because effective treatments for disease conditions are relatively rare, and may be unbelievable in the absence of supporting evidence.

Claims drawn to compositions intended for the administration to either mammals or humans generally require supporting evidence which clearly define the ingredients or constituents contained therein because of the unpredictability in biological responses to therapeutic treatments. In order to enable the skilled artisan to practice the invention as claimed, applicant would have to demonstrate the functional effect and describe the therapeutic effective amounts of extract

intended for a therapeutic treatment. There is no guidance in the specification, other than an ethyl acetate or methanolic extract of the seeds of *Napoleonaea imperialis*, which Applicant has shown to demonstrate antileishmanial, antifungal or antimalarial activities, wherein said extract comprises compound AD-1. According, it would take undue experimentation without a reasonable expectation of success to determine which plant extracts would exert which biological activities, wherein the plant extract is prepared using any and all solvents, and any all plant parts thereof other than those demonstrated as discussed above.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 is rendered vague and indefinite by the term "extract" because this term, in and of itself, does not adequately delineate its metes and bounds. This term is best defined as a product-by-process since product-by-process claims are intended to define products which are otherwise difficult to define (and/or distinguish from the prior art). For example, is the extract obtained via extraction with water, a polar solvent, a non-polar solvent, an acid or base, a squeezed extract, or something else? In addition, from what part(s) of the plant is the extract obtained? It is well

accepted in the herbal art that extraction with one of various distinct solvents, as well as from particular parts of therapeutic plants, has a profound impact on the final product with respect to the presence, absence, amounts, and/or ratios of active ingredients therein and, thus, its ability to provide the desired functional effect(s) instantly claimed and/or disclosed. Since the extract itself is clearly essential to the claimed invention, the step(s) by which the claimed extract is obtained are also clearly essential and, therefore, must be recited in the claim language itself (i.e., as a product-by-process). Please note that although the claims are interpreted in light of the specification, critical limitations from the specification cannot be read into the claims (see, e.g., *In re* Van Guens, 988 F.2d 1181, 26 PSPG2d 1057 (Ded. Cir. 1991)). Accordingly, without the recitation of all these critical limitations as set forth above, the claims do not adequately define the instant invention.

All of the claims are rendered vague and indefinite by the phrase "biologically active extract" because it is uncertain as to which biologically activity Applicant refers. Does the "biologically active extract" exert antibacterial, antifungal, nematocidal or antiparasitic activity? The lack of clarity makes the claim ambiguous.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1 and 11-12 are rejected under 35 U.S.C. 102(b) as being anticipated by Mbah et al. (U).

Applicant claims a biologically active extract from at least one plant selected from the group consisting of *Aframomum aulocacarpus, Aframomun danellii, Dranaena arborea, Eupatorium odoratum, Glossocalyx brevipes* and *Napoleonaea imperialis.* Applicant further claims a biologically active extract, wherein said extract is from *Napoleonaea imperialis.* Applicant further claims a biologically active extract, wherein said extract is from at least one of roots, stem bark, leaves, fruits or seeds from said plant.

Mbah teaches an extract of the leaves, stems, stem bark, roots and root bark of *Napoleonaea imperialis* which exerts antimicrobial activity against bacterial species. The reference anticipates the claimed subject matter.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michele Flood whose telephone number is (703) 308-9432. Any inquiry of a general nature or relating to the status of this application should be directed to the Group 1600 receptionist whose telephone number is (703) 308-0196 or the Supervisory Patent Examiner, Michael Wityshyn whose telephone number is (703) 308-4743.

MCF

April 27, 2001

CHRISTOPHER R. TATE
PRIMARY EXAMINER